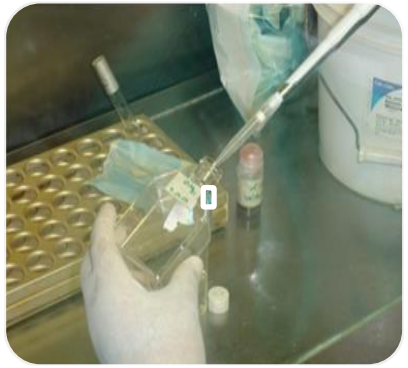
Regional Laboratory Report-SEA

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Regional Reference Laboratory for FMD in South East Asia,
NIAH, DLD, Thailand

Outline



Laboratory Diagnosis



Quality Assurance



Training and Networking

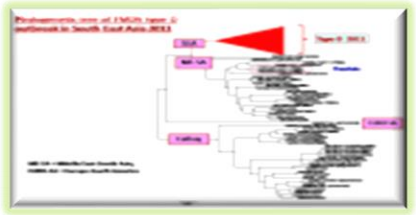


Research & Collaboration

Laboratory Diagnosis

- FMD Laboratory Diagnosis
  - Antigen detection
    - ELISA typing
      - Initial
      - Virus isolated
    - Virus isolation
      - Primary lamp kidney cell
      - BHK-21 cell
    - RT-PCR
  - Strain characterization
    - Antigen variation or vaccine matching (r-value)
    - Genomic variation sequencing (Phylogenetic tree)
  - Antibody detection
    - LP ELISA Test
    - NSP Test





Laboratory Diagnosis

ELISA typing in 2019-2020

Year	Country	No. of sample	ELISA typing results			
			O	A	Asia1	NVD
2019	Thailand	147	97	19	-	31

Year	Country	No. of sample	ELISA typing results			
			O	A	Asia1	NVD
2020 (Jan-June)	Thailand	119	80	-	-	39
	Cambodia (2018)	91	35	-	-	56 (TN=7)

TN, True negative by realtime RT-PCR

Laboratory Diagnosis

Serum samples submission to RRL in 2020 (Jan-May)

Country	2020 (Jan – May)				
	LP ELISA	NSP s Test	NSPs Test		
			Positive	Negative	% Positive
Thailand	4,453	2,582	499	2,083	23.95

Laboratory Diagnosis

Vaccine Matching Type O

Year	Country	O/189/87 Thai vaccine strain r-value			
		n	0-0.19	0.2-0.39	0.40-1.0
2019	Thailand	11	-	-	11

Year	Country	O/189/87 Thai vaccine strain r-value			
		n	0-0.19	0.2-0.39	0.40-1.0
2020 (Jan-May)	Thailand	14	-	-	14

Laboratory Diagnosis

Vaccine Matching Type A

Year	Country	n	A/Lopburi/2012			A/Sakolnakorn/97			A118/87		
			0-0.19	0.2-0.39	0.40-1.0	0-0.19	0.2-0.39	0.40-1.0	0-0.19	0.2-0.39	0.40-1.0
2019	Thailand	33	2	-	31	1	1	10	No binding reaction		

* 2020 : no sample

Laboratory Diagnosis

Nucleotide sequencing in SEA, 2019

Country	Serotype O by ELISA typing	TOPOTYPE				Serotype A by ELISA typing	Topotype	Serotype Asia1
		SEA/ Mya-98	ME-SA/ PanAsia	ME-SA/ Ind2001e	CATHAY		ASIA/ Sea-97	Asia 1/ Gr-VIII
Cambodia	+	-	+	-	-	+	-	-
Lao PDR	+	-	-	-	-	-	-	-
Myanmar	+	+	-	+	-	+	+	-
Malaysia	+	-	-	-	-	+	-	-
Thailand	+*	-	+*	+*	-	+*	+*	
Vietnam	+	+	-	+	-	-	-	-

Source: WRL, UK and OIE-SRR
*RRL-SEA

Laboratory Diagnosis

Nucleotide sequencing in SEA, 2020 (Jan-May)

Country	Serotype O by ELISA typing	TOPOTYPE				Serotype A by ELISA typing	Topotype	Serotype Asia1
		SEA/ Mya-98	ME-SA/ PanAsia	ME-SA/ Ind2001e	Cathay		ASIA/ Sea-97	Asia 1/ Gr-VIII
Cambodia	-	-	-	-	-	-	-	-
Lao PDR	+	-	-	-	-	-	-	-
Myanmar	+	-	-	-	-	-	-	-
Malaysia	-	-	-	-	-	-	-	-
Thailand	+*	-	-	+*	-	-	-	-
Vietnam	+	-	-	-	-	-	-	-

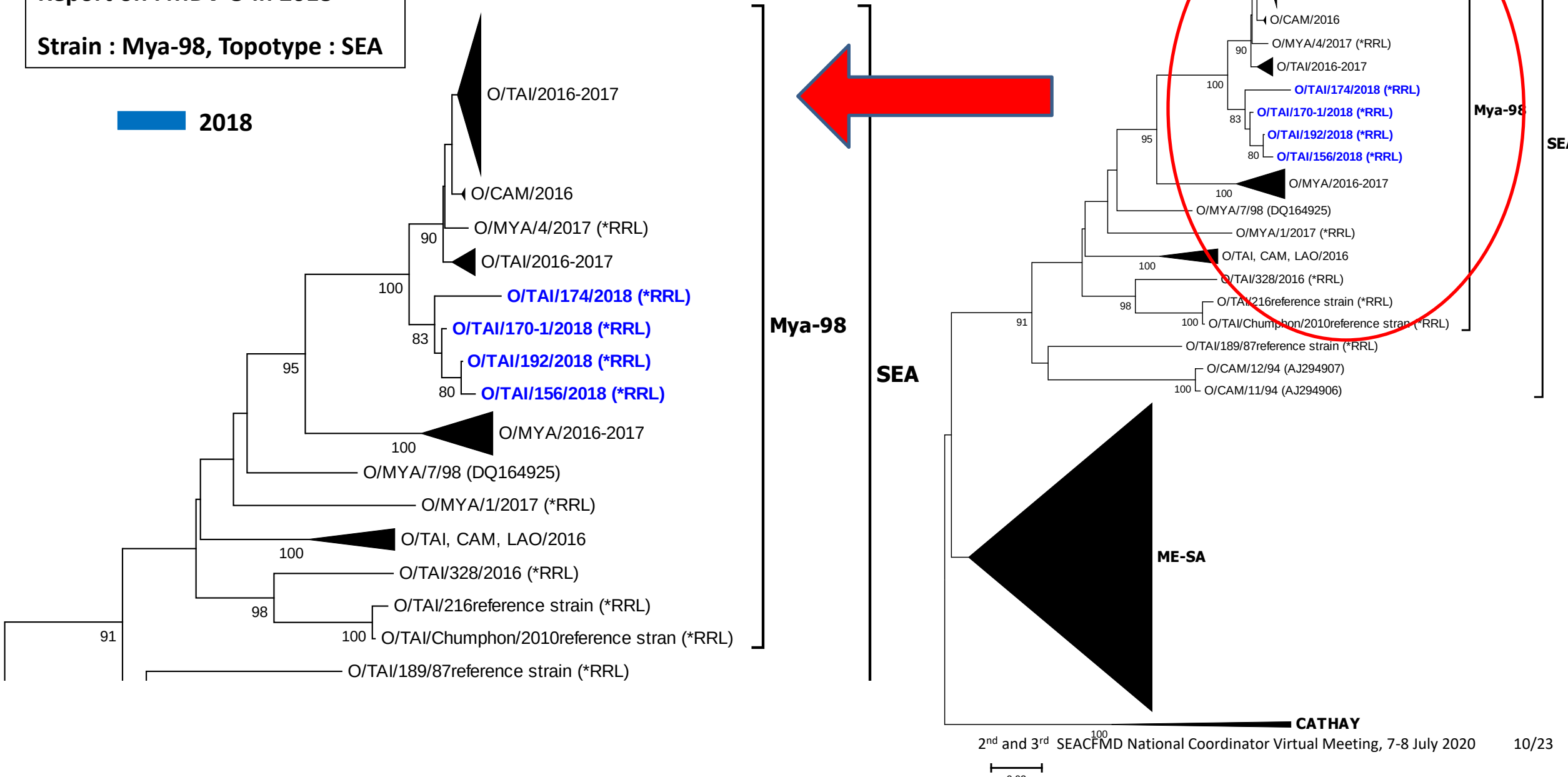
Source: OIE-SRR
*RRL-SEA

FMD Genotyping Report Regional Reference Laboratory for FMD in South East Asia

Report on FMDV O in 2018

Strain : Mya-98, Topotype : SEA

2018



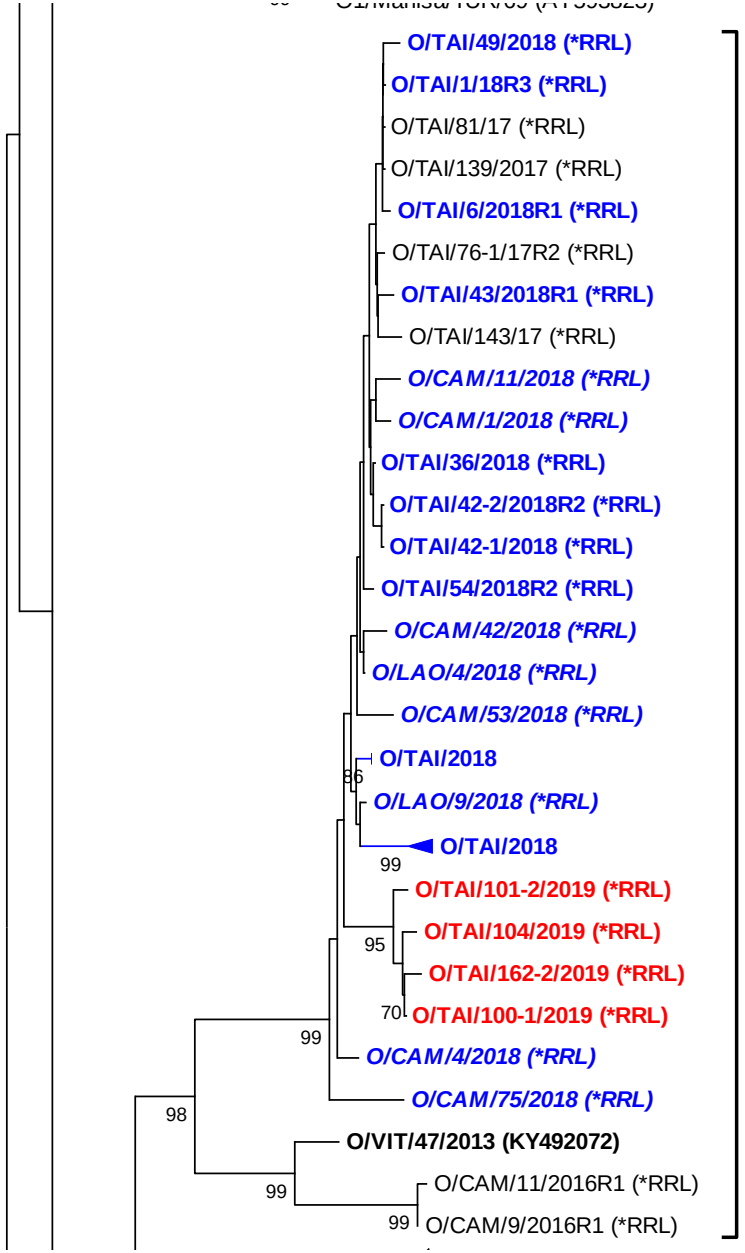
FMD Genotyping Report Regional Reference Laboratory for FMD in South East Asia

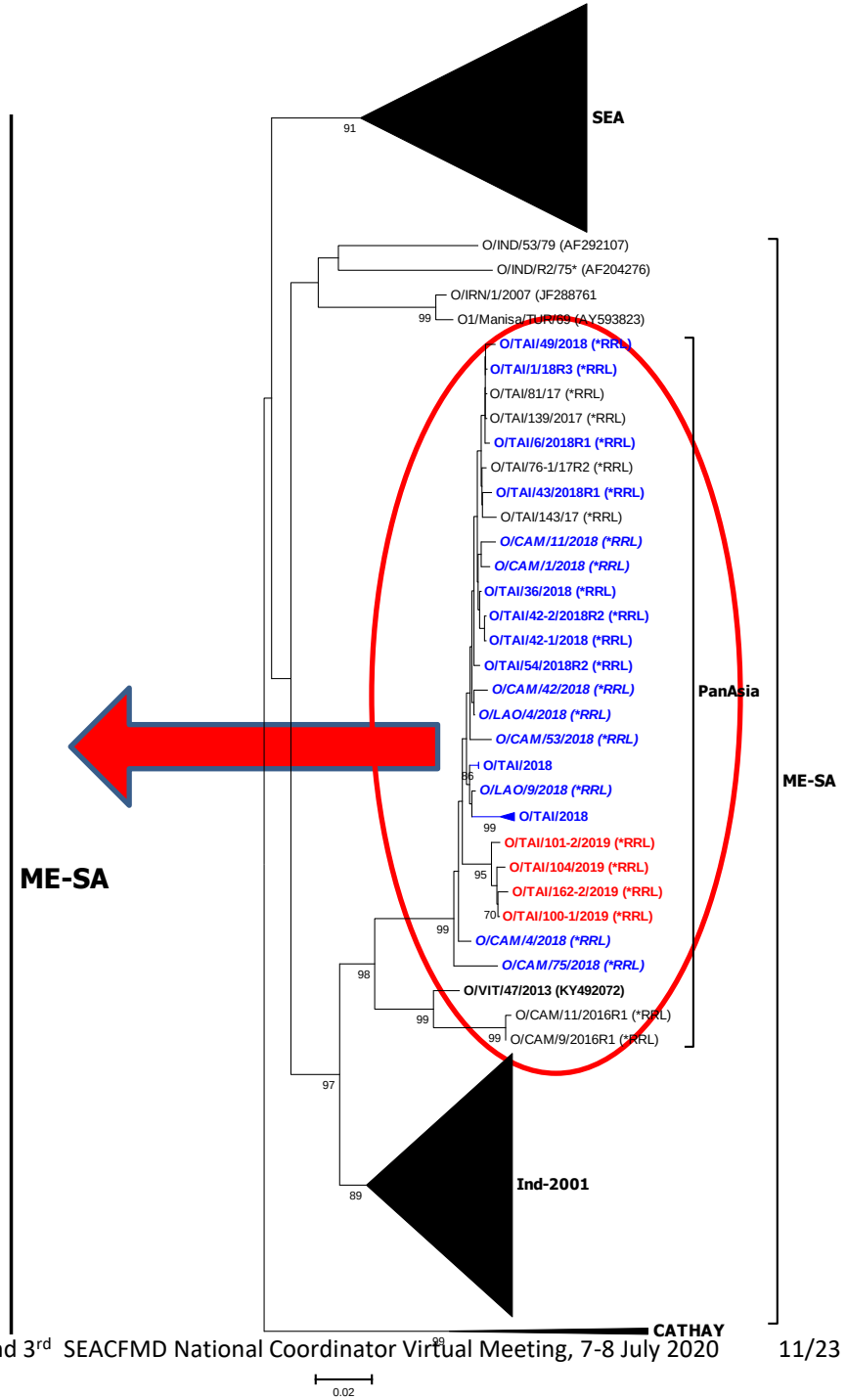
Report on FMDV O in 2018-2019

Strain : PanAsia, Topotype : ME-SA

2018

2019





FMD Genotyping Report Regional Reference Laboratory for FMD in South East Asia

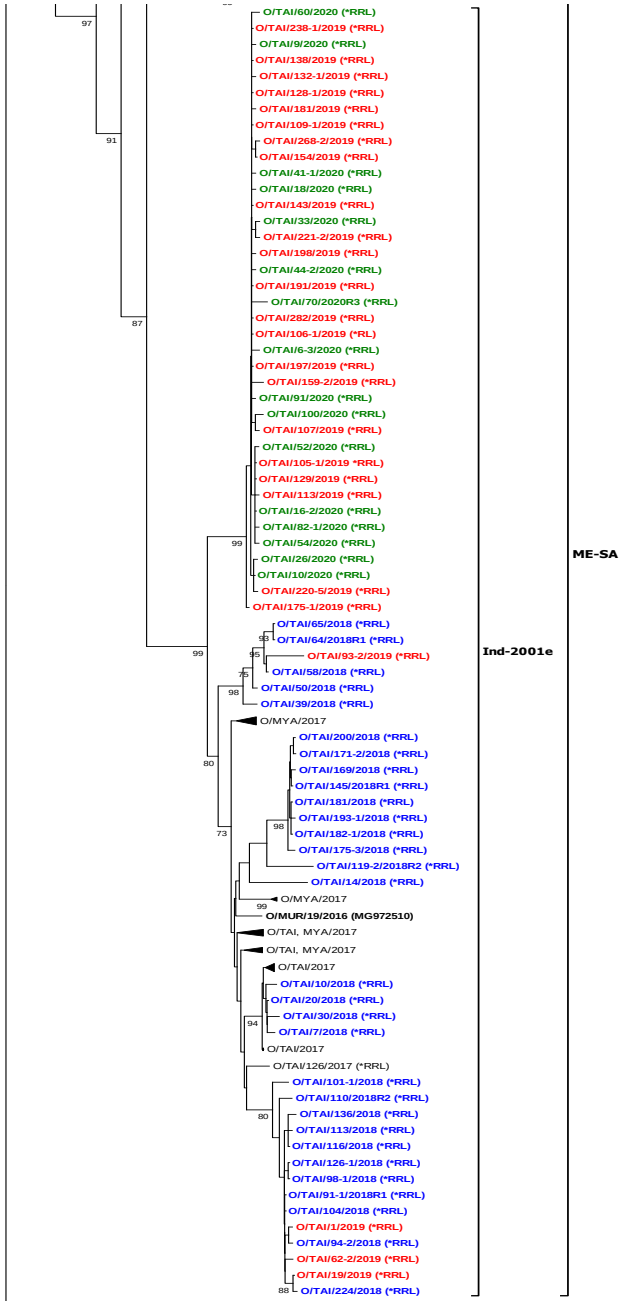
Report on FMDV O in 2018-2020

Strain : Ind-2001e, Topotype : ME-SA

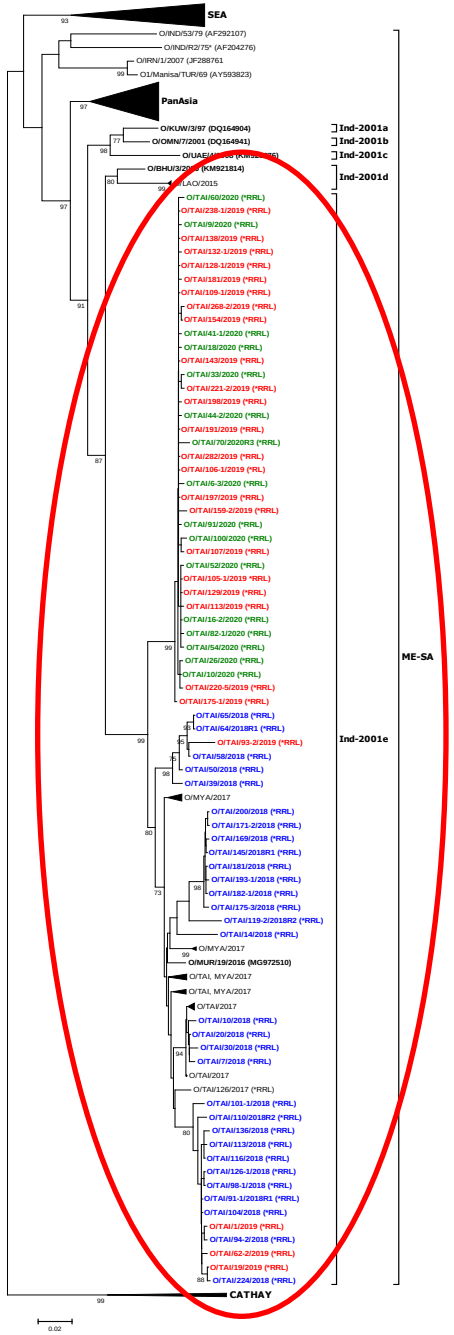
2018

2019

2020





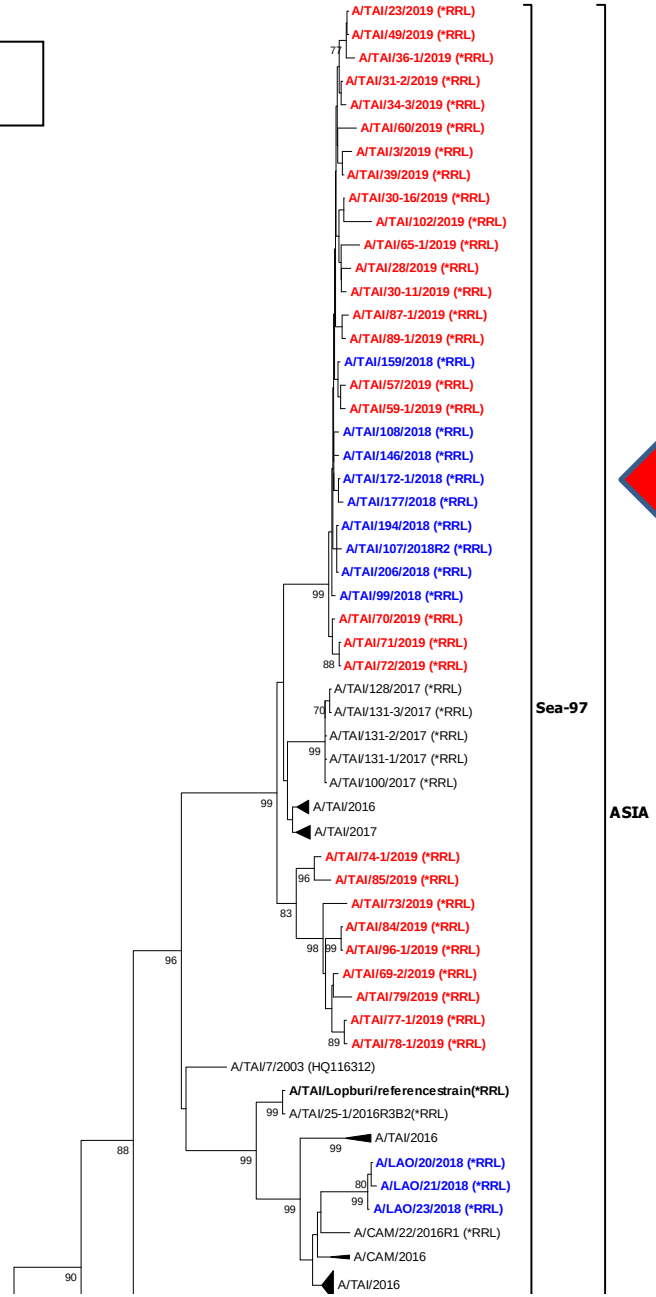


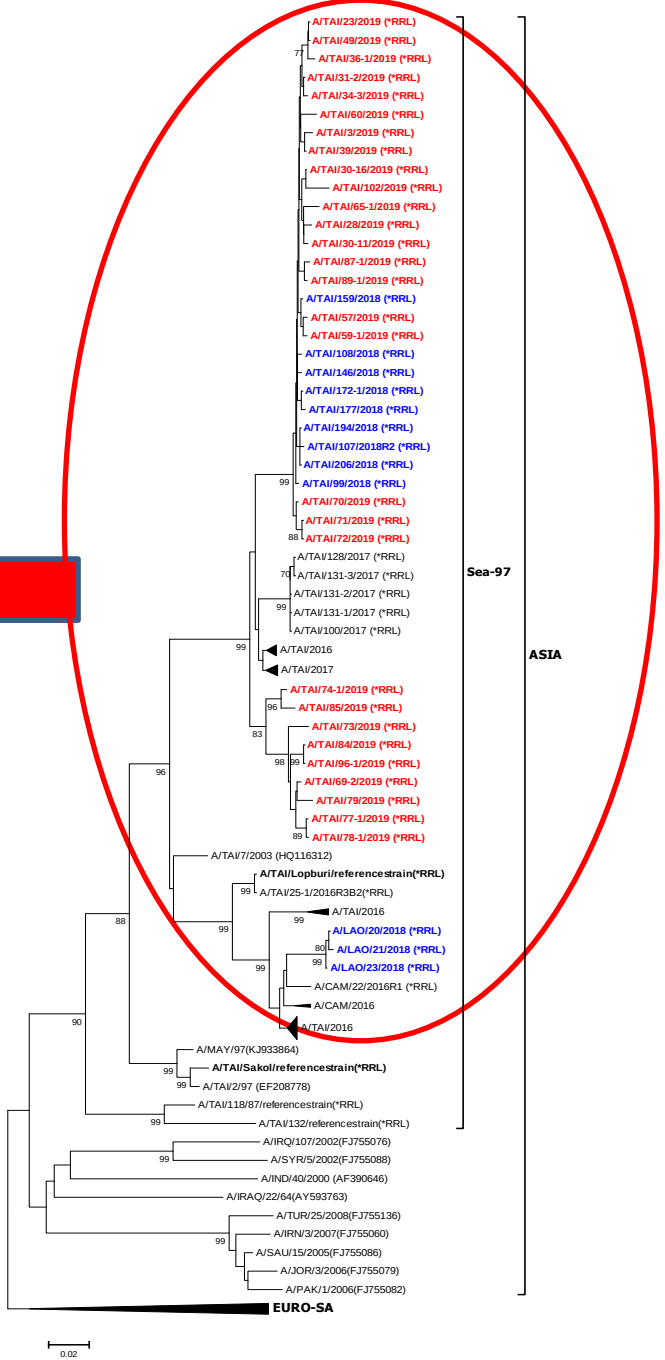
FMD Genotyping Report Regional Reference Laboratory for FMD in South East Asia

Report on FMDV A in 2018-2019

2018

2019





Laboratory Diagnosis

Supply of reagents during 2019 to 2020 (Jan-May)

Reagent	National lab (Set)	International lab (Set)	Total
Rabbit type O	33	2	35
Rabbit type A	39	-	39
Rabbit type Asia1	28	-	28
Guinea pig type O	39	2	41
Guinea pig type A	51	-	51
Guinea pig type Asia1	33	-	33
Antigen Type O	77	-	77
Antigen Type A	75	-	75
Antigen Type Asia 1	97	-	97
Control serum c++, c+, c-	24	1	25

Supplied reagents to

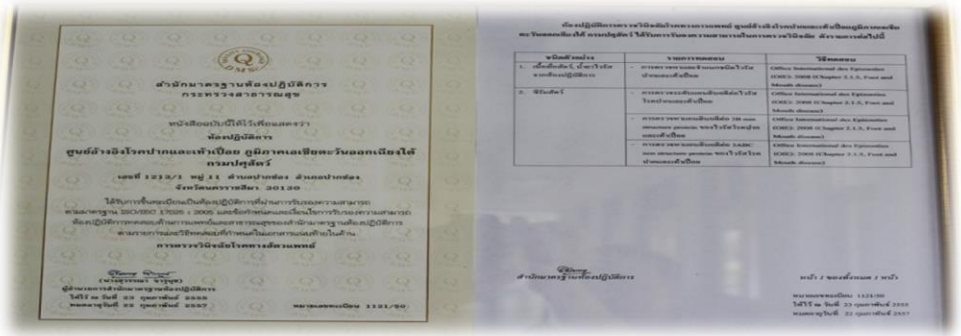
- **National Lab**
  - VRDC- Upper Northern (Lumpang)
  - VRDC- Lower Northern (Pitsanulok)
  - VRDC- Upper Northeastern (Khon Khaen)
  - VRDC- Lower Northeast (Surin)
  - VRDC- Western (Ratchaburi)
  - National Institute of Animal Health
  - VRDC- East (Chonburi)
  - VRDC- Southern 1 (Nakhonsrithammarat)
  - VRDC- Southern 2 (Songkhla)
- **Myanmar**

Quality Assurance

- **RRL has accredited by ISO/IEC 17025:2017 from Accreditation Body in Thailand, Bureau of Laboratory Quality Standard, Dept. of Medical Science**

Accreditation scopes:

- **Antigen typing test by ELISA technique**
- **Antibody measurement by LP ELISA**
- **3ABC Non structural protein (NS) test**



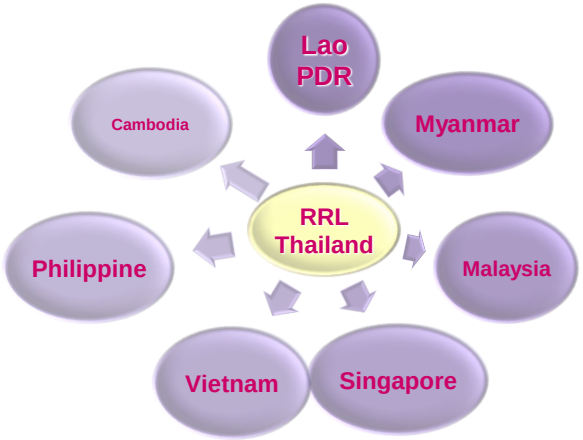
Quality Assurance

❖ Proficiency testing program in the region

- Summary report of the 7th /2019 PT on FMD serology and antigen typing test in the region will send to participated laboratories within July 2020 and plan to conduct of the 8th/2020 PT in 2021







❖ FMD PT with Reference Laboratories

- Participated in the 2019/2020 FMD PTS organized by WRL

TRAINING AND NETWORKING

Meetings attended

- 22nd SEACFMD National Coordinators Meetings in Ulaanbaatar, Mongolia, June 25-27, 2019
- Veterinary Diagnostic Laboratory Network Coordination Meeting with Directors of African and Asia Veterinary in Austria, August 9 -23, 2019
- Regional Expert Group Meeting on Foot and Mouth Disease in Bangkok, Thailand, May and November 2019
- SEACFMD Laboratory Network Meeting in Pakchong, Thailand, November 4-5, 2019
- 14th OIE/FAO FMD Reference Laboratories Network Annual Meeting in Pusan, South Korea, December 3-5, 2019







TRAINING AND NETWORKING

Meetings/Visiting

- MORU-DTRA (Defense Threat Reduction Agency, USA) : Introduction to RRL-SEA Renovation Project in Training center and BSL-3 building (5 years project)







TRAINING AND NETWORKING

Training

❖ DLD-MORU-DTRA in Thailand Veterinary Laboratory Capacity Building Project (CATH3): Online training course, PACs system management and Biomedical waste management, 5th June





TRAINING AND NETWORKING

Trainings provided

- The training course: Use of Nuclear Derived Techniques for Early Detection and Typing of Foot and Mouth disease (FMD), IAEA project, trained in RRL during 30 September 2019 to 25 October 2019






Research & Collaboration

National and International and collaborations

- Collaboration research with AAHL, Australia
  - Develop the serotyping for FMDV type O, A and Asia1 by real-time RT-PCR
  - FMD virus vaccine matching study in SEA

- Collaboration with Japan Science and Technology Agency, Japan in Science and Technology Research Partnership for Sustainable Development (SATREP Project)

Research

- RRL research; Comparative sensitivity and specificity in commercial foot and mouth disease virus non structural protein ELISA kit

Sample submission

Sample submission for the border of Thailand to RRL - FMD

	Thailand	Host country
Lao PDR	Nong Khai Province	Vientiane
Cambodia	Srakaew Province	Poipet Banteay Meanchey
Myanmar	Tak Province	Moei Wodi
Malaysia	Songkla Province Narathivat Province	Parid Jade Kelantan

Thank you for your attention



Acknowledgements: RRL staff